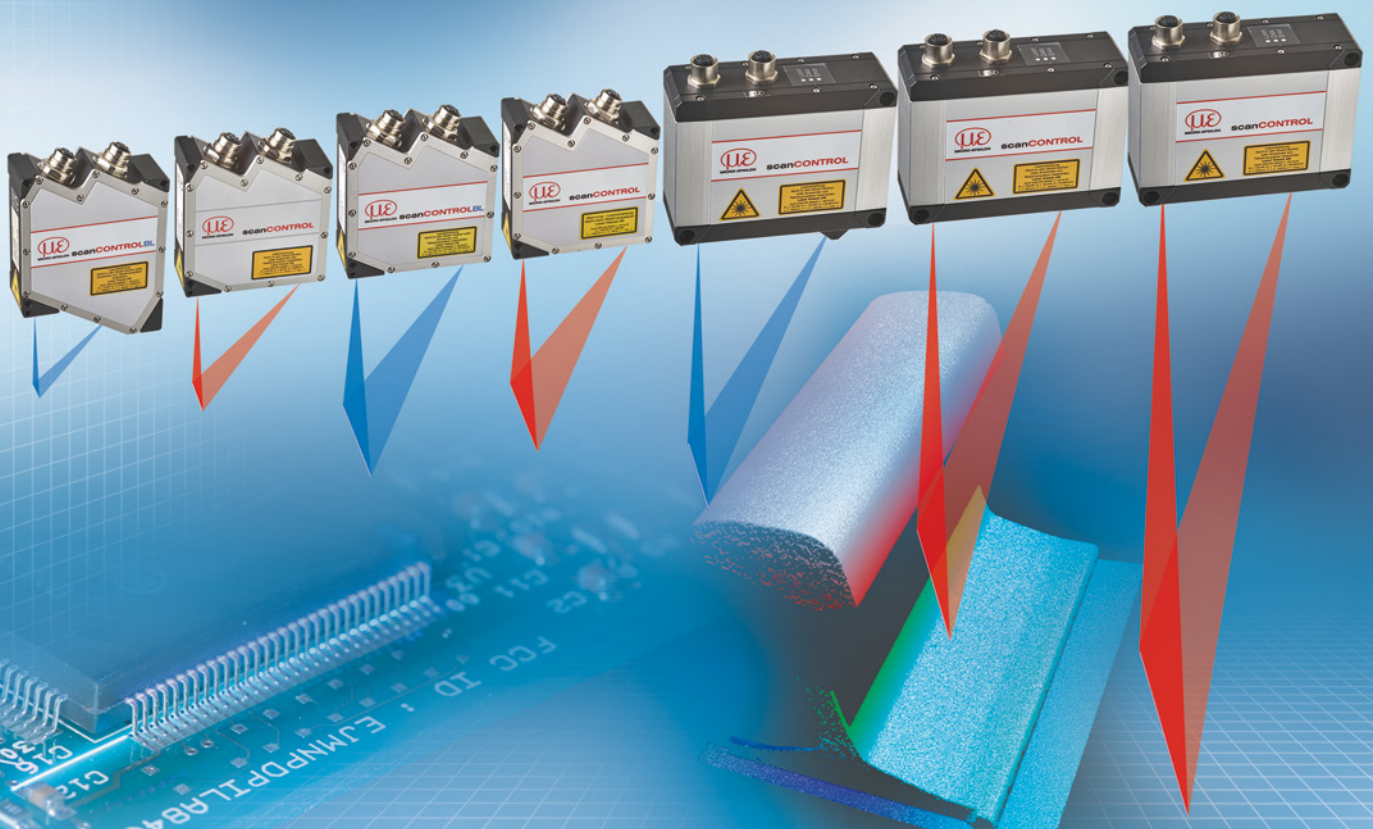# More Precision

scanCONTROL // 2D/3D Laser profile sensors

Ideal for precise 2D/3D measurements

Resolution (x-axis) 1,280 points

High accuracy for the detection of finest details

Profile frequency up to 2,000 Hz

Also available with patented Blue Laser Technology

Compact design for precise measurements

scanCONTROL 29x0 laser scanners are designed for industrial measurement tasks where compact design and high accuracy are required. Thanks to their high resolution, versatility and excellent price-performance ratio, the scanners are particularly suitable for static and dynamic applications, e.g., on robots. They measure and evaluate, e.g., angles, steps, gaps, distances and extreme values.

Available as COMPACT and SMART versions

The scanCONTROL 29x0 series is available as COMPACT and SMART versions. The COMPACT scanners provide calibrated profile data that can be further processed on a PC with software evaluation provided by the customer. SMART scanners operate autonomously and provide selected measurement values. The sensor parameters and the desired measuring programs are set in the scanCONTROL Configuration Tools software and directly stored in the internal controller.

Small measuring range with high resolution

With a laser line of just 10 mm, the scanCONTROL 29x0-10/BL models recognize the finest of details and structures. The high profile resolution combined with the blue laser line allow for maximum precision in versatile applications, e.g., monitoring in electronics production.

Article designation

| LLT | 29 | 00 | -25 | /SI |

Options - see below

Measuring range
10 mm (only Blue Laser)
25 mm
50 mm
100 mm

Class
00=COMPACT
10=SMART
50=HIGHSPEED
60=HIGHSPEED SMART

Series
LLT29x0

Laser options*

	/SI	Hardware switch-off of the laser line
	/3B	Increased laser power (class 3B, $\leq$ 20 mW), e.g., for dark surfaces
	/BL	Blue laser line (405 nm) for (semi-) transparent, red-hot glowing and organic materials

Cable output options*

	/PT	Cable directly out of the sensor ("Pigtail") Length 0.3 m
	/VT	Cable directly out of the sensor ("Variable Tail") Length 0.1 ... 1.0 m (freely selectable)

*Options can be combined

Model	LLT29x0-10/BL	LLT 29xx-25	LLT 29xx-50	LLT 29xx-100
Available laser type	Blue Laser	Red Laser Blue Laser	Red Laser Blue Laser	Red Laser Blue Laser
z-axis — Measuring range — Start of measuring range	52.5 mm	53.5 mm	70 mm	190 mm
Mid of measuring range	56.5 mm	66 mm	95 mm	240 mm
End of measuring range	60.5 mm	78.5 mm	120 mm	290 mm
Height of measuring range	8 mm	25 mm	50 mm	100 mm
Extended measuring range — Start of measuring range	-	53 mm	65 mm	125 mm
End of measuring range	-	79 mm	125 mm	390 mm
Line linearity [1][2]	1 µm	2 µm	4 µm	12 µm
	±0.0125 %	±0.008 %	±0.008 %	±0.012 %
x-axis — Measuring range — Start of measuring range	9.4 mm	23.4 mm	42 mm	83.1 mm
Mid of measuring range	10 mm	25 mm	50 mm	100 mm
End of measuring range	10.7 mm	29.1 mm	58 mm	120.8 mm
Extended measuring range — Start of measuring range	-	23.2 mm	40 mm	58.5 mm
End of measuring range	-	29.3 mm	60 mm	143.5 mm
Resolution	1,280 points/profile			
Profile frequency — Standard	up to 300 Hz			
Highspeed	up to 2,000 Hz			
Interfaces — Ethernet GigE Vision	Output of measurement values / Sensor control / Profile data transmission			
Digital inputs	Mode switching / Encoder (counter) / Trigger			
RS422 (half-duplex) [3]	Output of measurement values / Sensor control / Trigger / Synchronization			
Output of measurement values	Ethernet (UDP / Modbus TCP); RS422 (ASCII / Modbus RTU) / analog [4]; switch signal [4] / PROFINET [5]; EtherCAT [5]; EtherNet/IP [5]			
Control and display elements	3x color LEDs for laser, data and error			
Light source — Red Laser	-	≤ 8 mW		
	-	Standard: laser class 2M, semiconductor laser 658 nm		
	-	≤ 20 mW		
	-	Option: laser class 3B, semiconductor laser 658 nm		
Blue Laser	≤ 8 mW			
	Standard: laser class 2M, semiconductor laser 405 nm			
Laser switch-off	via software, hardware switch-off with /SI option			
Aperture angle of laser line	10°	20°	25°	25°
Permissible ambient light (fluorescent light) [1]	10,000 lx			
Protection class (DIN EN 60529)	IP65 (when connected)			
Vibration (DIN EN 60068-2-27)	2 g / 20 … 500 Hz			
Shock (DIN EN 60068-2-6)	15 g / 6 ms			
Temperature range — Storage	-20 … +70 °C			
Operation	0 … +45 °C			
Weight	440 g (without cable)	380 g (without cable)		
Supply voltage	11 … 30 VDC, nominal value 24 V, 500 mA, IEEE 802.3af class 2, Power over Ethernet (PoE)			

[1] According to measuring range; Measuring object: Micro-Epsilon standard object
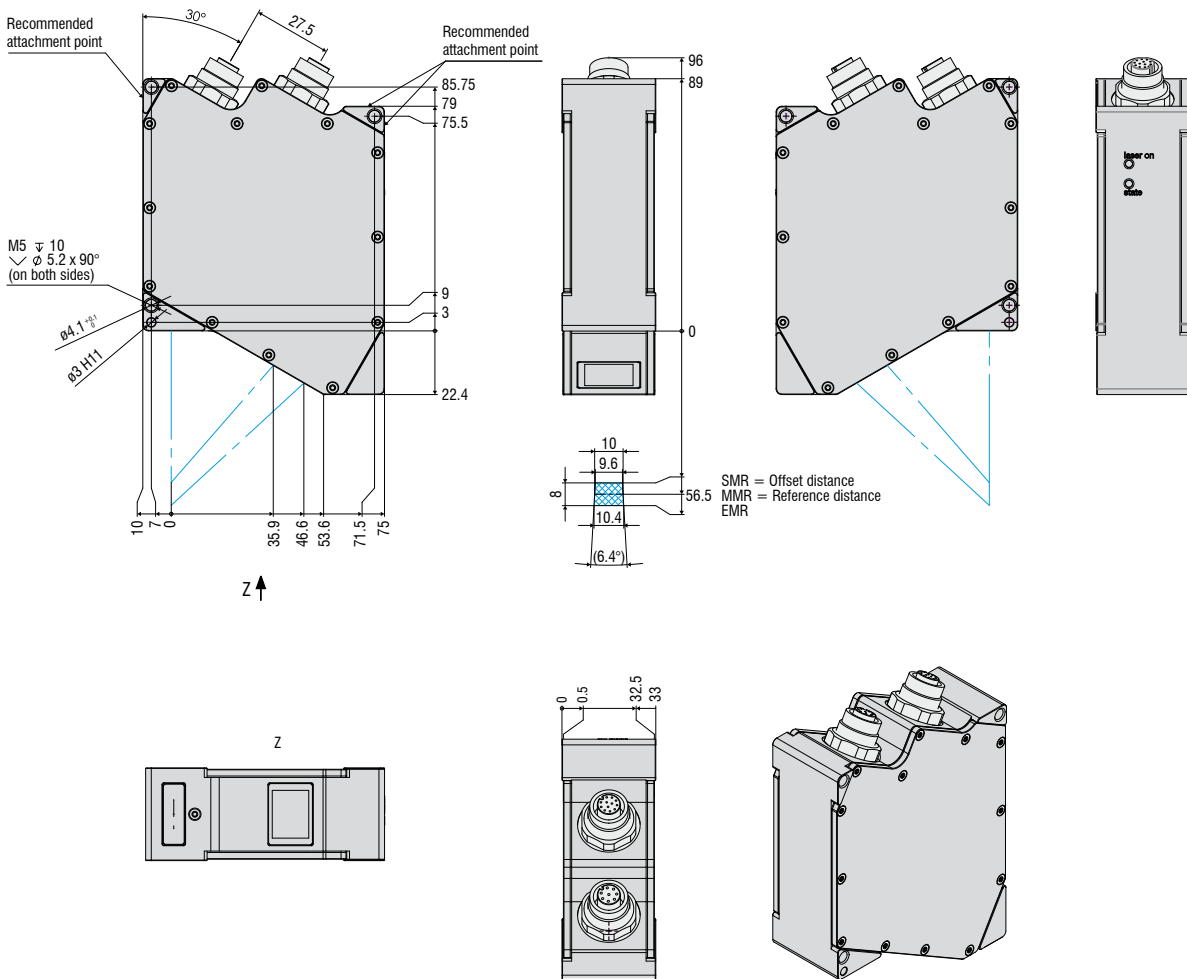[2] According to a one-time averaging over the width of the measuring field (640 points)
[3] RS422 interface, programmable either as serial interface or as input for triggering/synchronization
[4] Only with 2D/3D Output Unit
[5] Only with 2D/3D Gateway

LLT29x0-10/BL

Blue Laser

Recommended attachment point

30° 27.5

Recommended attachment point

85.75
79
75.5

M5 ⊽ 10
∅ 5.2 x 90°
(on both sides)

9
3

ø4.1 +0.1
ø3 H11

22.4

10 7 0   35.9 46.6 53.6 71.5 75

Z ↑

96
89

0

10
9.6
8
56.5
10.4
(6.4°)

SMR = Offset distance
MMR = Reference distance
EMR

Z

0 0.5   32.5 33

laser on
state

LLT25x0-25 / LLT29x0-25

Red Laser   Blue Laser

Recommended attachment point

Recommended attachment point

30°   27.5

85.75
79
75.5

M5 ⊽ 10
⌵ ∅ 5.2 x 90°

∅ 4.1
∅ 3

9
3
0

10
7
0

46.9
64.1
71.5
75

Z

96
89

0

29.3
29.1
25
23.4
23.2

MR ext. > = 53
53.5 SMR

66 MMR

78.5 EMR
MR ext. < = 79

(12.9°)

standard range

extended range

0
0.5

32.5
33

laser on
state
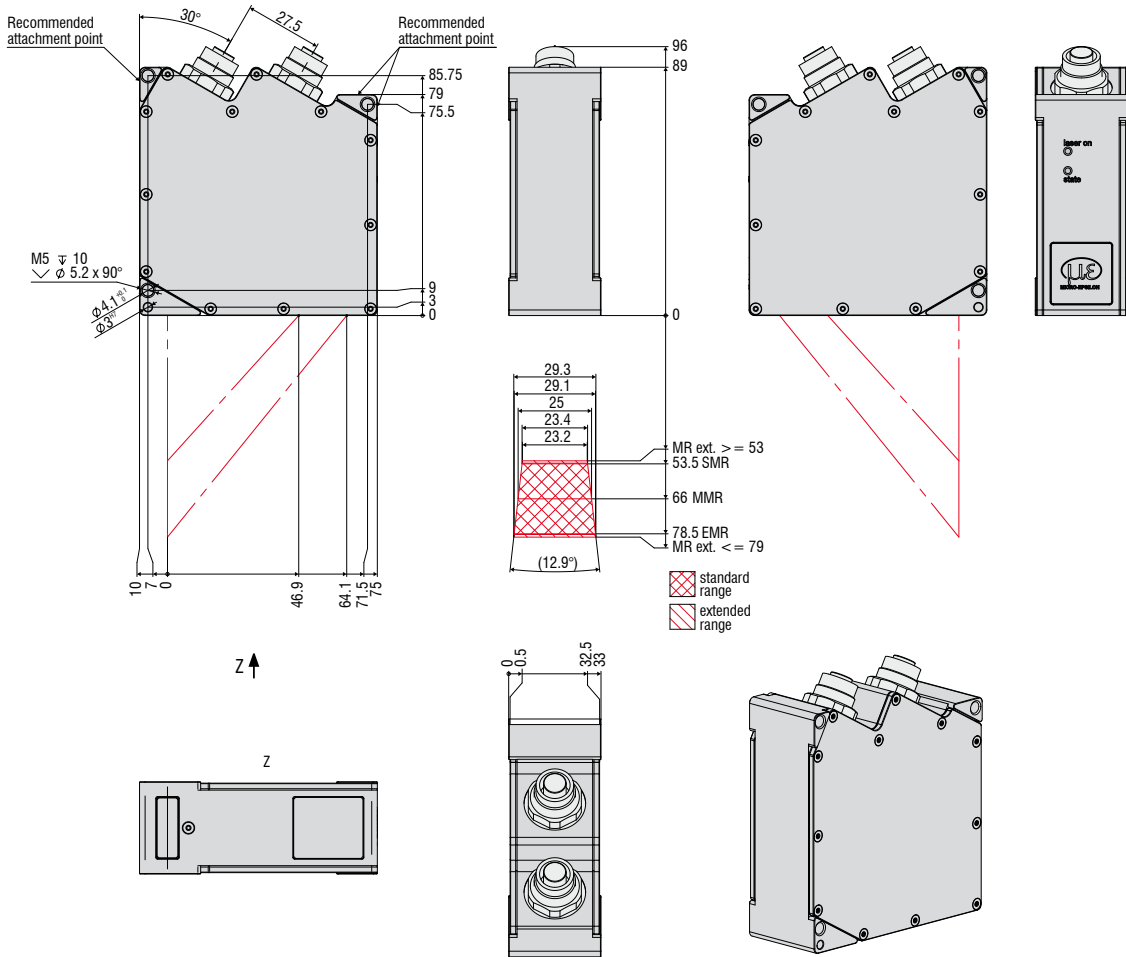
LLT25x0-50 / LLT29x0-50

Red Laser   Blue Laser

Recommended attachment point

Recommended attachment point

30°

27.5

85.75
79
75.5

96
89

0

M5 ⊽ 10
∅ 5.2 x 90°

∅ 4.1 ¹ ⁺⁰·¹
∅ 3 ᵈᵉᵉᵖ

9
3
0

60
58
50
42
40

MR ext. >= 65
70 SMR

95 MMR

120 EMR
MR ext. <= 125

(−19°)

10
7
0

47.2

64.8
71.5
75

Z ↑

standard range

extended range

0
0.5

32.5
33

Z
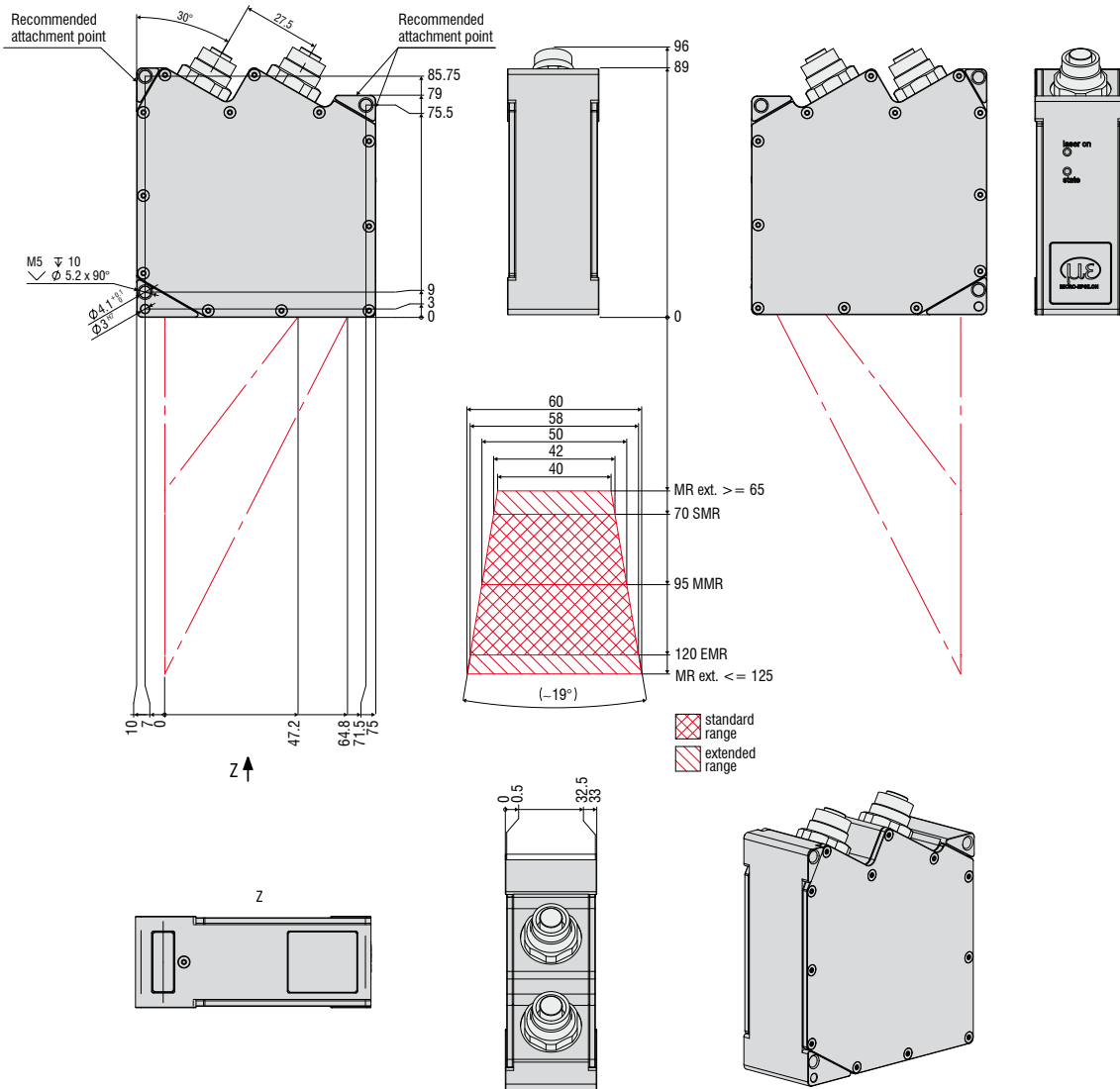
LLT25x0 / LLT29x0-100

Red Laser   Blue Laser

Recommended attachment point

Recommended attachment point

30°   27.5

85.75
79
75.5

M5 ⊽ 10
∨ ⌀ 5.2 x 90°

⌀4.1 +0.1
⌀3 H7

9
3
0

10 7 0   48 65.5 71.5 75

Z

Z

96
89

0

143.5
120.8
100
83.1
58.5

MR ext. >= 125

190 SMR

240 MMR

290 EMR

MR ext. <= 390

(21.4°)

standard range
extended range

0
0.5

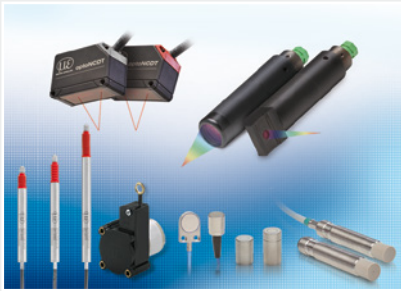32.5
33

laser on
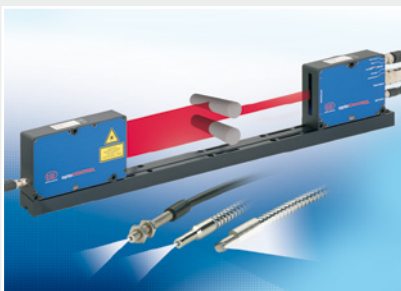
state
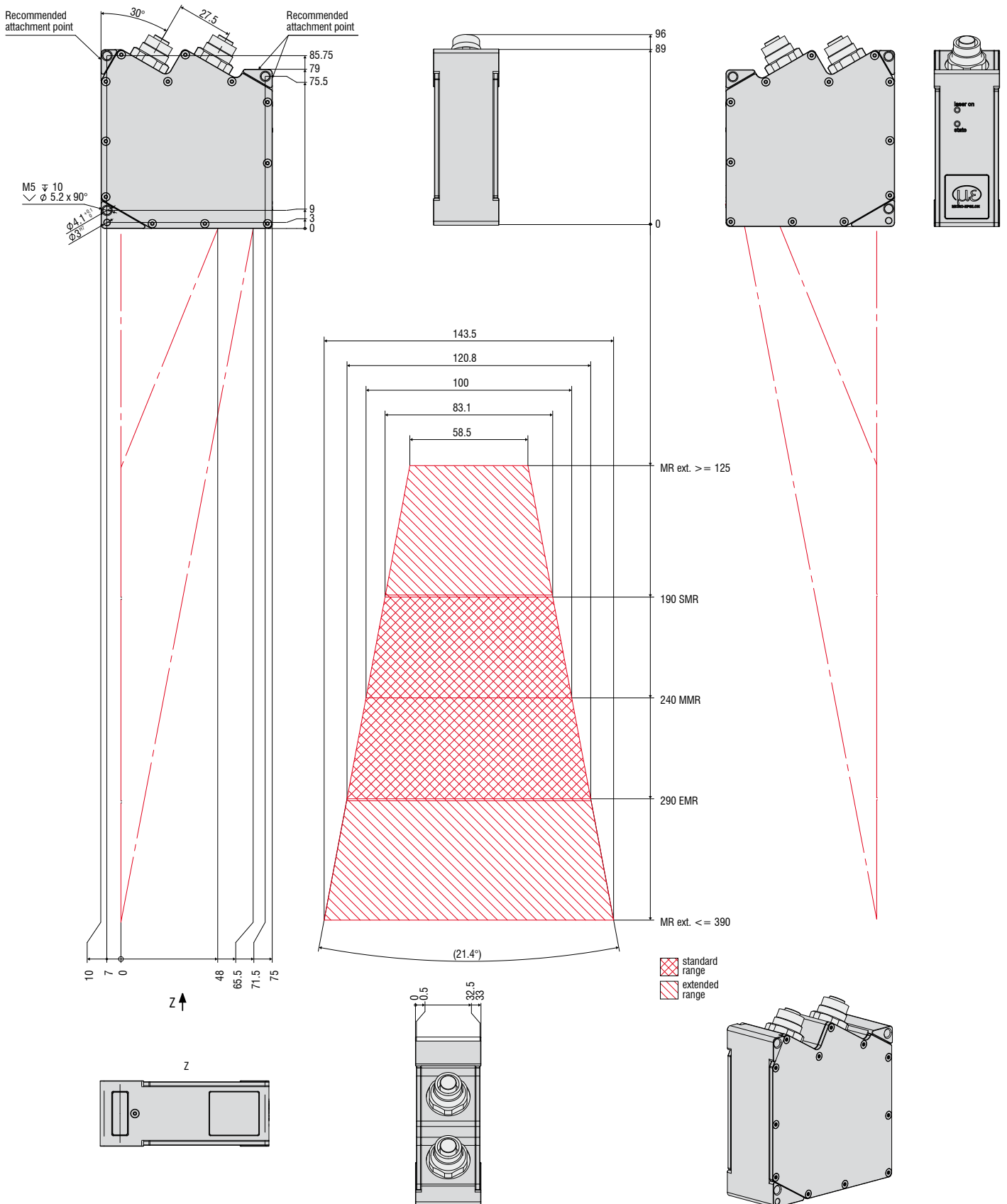
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